

SEREDENKO, M.M., kand.ekon.nauk; KUGUSHEV, M.F. [Kuhushev, M.F.];
 PRAVDIN, M.V.; FOMICHEV, V.I.; ALEKSANDROVA, V.P.; GORODETSKIY,
 N.I. [Horodets'kyi, N.I.]; DYATLOV, T.I.; KALITA, M.S. [Kalyta,
 M.S.]; DARAGAN, M.V. [Darahan, M.V.]; RADINA, Yu.M.; VOROB'YEVA,
 K.T. [Vorobyova, K.T.]; LASTIVKA, N.N.; STARODUBSKIY, R.D.
 [Starodubs'kyi, R.D.]; YATSENKO, P.F.; MUROMTSEVA, G.M.
 [Muromtseva, H.M.]; RASNER, S.I.; CHERNYAK, K.I.; KOBILYAKOV,
 I.I. [Kobyliakov, I.I.]; ALEKSANDROVA, V.O., kand.ekonom.nauk,
 otv.red.; DEMIDYUK, V.F. [Demydiuk, V.F.], red.; LIBERMAN, T.R.,
 tekhn.red.

[Ways of increasing profits in metallurgical industries] Shliakhy
 pidvyshchennia rentabel'nosti metalurgiinykh pidpriemstv. Kyiv,
 Vyd-vo Akad.nauk URSR, 1961. 93 p.

(MIRA 14:6)

1. Akademiya nauk USSR, Kiyev. Institut ekonomiki. 2. Institut
 ekonomiki AN USSR (for Seredenko, V.P.Aleksandrova, Kalita,
 Daragan, Radina). 3. Dnepropetrovskiy khimiko-tekhnologicheskii
 institut (for Gorodetskiy, Dyatlov). 4. Dneprodzerzhinskiy
 metallurgicheskii institut (for Kobilyakov).

(Dnepropetrovsk Province—Steel industry—Costs)

STARODUBSKIY, R.D.

Improving planning indices in metallurgical plants. Stal'
22 no.2:169 F '62. (MIRA 15:2)

1. Zavod im. Dzerzhinskogo.
(Metallurgical plants---Accounting)

SOV/112-58-2-3280

Translation from: Referativnyy zhurnal, Elektrotehnika, 1958, Nr 2, p 229 (USSR)

AUTHOR: Starodubtsev, A. M.

TITLE: The Inherent Noise in a Transmission Line with Losses
(Sobstvennyye shumy linii peredachi s poteryami)

PERIODICAL: Uch. zap. Gor'kovsk. un-t, 1957, Vol 35, pp 38-50

ABSTRACT: The spectral noise density and the mean square of the noise voltage are determined for a transmission line with arbitrary terminations and with an allowance for losses in the line. Specific cases of matched loads on the receiving or transmitting end or on both ends are examined. The results obtained can be used for the analysis of errors in measuring weak noise, and also for measuring line losses on the basis of inherent thermal radiation.

N.A.S.

Card 1/1

68202

SOV/58-59-5-11401

3.1720

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, pp 213 - 214 (USSR)

AUTHORS: Strezhneva, K.M., Plechkov, V.M., Starodubtsev, A.M.

TITLE: Investigation of the Correlation Between Solar Radio Emission Intensity
and Visible Active Formations on the Sun

PERIODICAL: Solnechnyye dannyye, 1958, Nr 7, pp 71 - 76

ABSTRACT: The authors submit the results of daily observations of solar radio emission on 1.6, 3.2, 10 and 145 cm wavelengths. These observations were conducted at the NIRFI radioastronomical station in Zimenka near the town of Gor'kiy during the period 1955 - 1957. As a rule, the cm-wavelength radio-emission intensity during the course of the day remained constant within the limits of measurement accuracy (10%). The authors describe the cases of intensity variation which exceed this magnitude. In the period 1956 - 1957 the effective temperature T_{ef} of the quiet sun's radio emission on 1.6, 3.2, 10 and 145 cm wavelengths was equal to 8×10^3 , 17×10^3 , 45×10^3 , and 10^6 degrees K respectively. The authors studied the correlation between the total area of spots S_p and the effective temperature of the sun. For the 10 and 145 cm wave-

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68202

SOV/58-59-5-11401

Investigation of the Correlation Between Solar Radio Emission Intensity and Visible Active Formations on the Sun

lengths a better correlation is that not with S_p but rather with the so-called "complex" spot area $S_p = aS_0 + bS_{-1} + cS_{-2} = \dots$, where S_0 is the average monthly area of spots which have appeared during the period in question, S_{-1} is the average monthly area of spots which have completed one turn around the sun, S_{-2} is that of spots which have completed two turns, etc., while a , b and c are coefficients, the combination of which maximizes the correlation. On the 3.2 cm wavelength allowance for the preceding turns did not lead to an improvement of the correlation. On the 145 cm wavelength the enhanced radiation connected with active sources exceeds in intensity the quiet sun's radiation level by a factor of 6 - 10, the greatest correlation being with a spot area in the central region ($r = 0.5 R_\odot$) of the disk. The correlation coefficient between T_{ef} and S_p for this region amounts to 0.48 (as against 0.28 for the entire disk). The T_{ef} correlation on the 3.2 and 10 cm wavelengths is high (+0.8), on the 10 and 145 cm wavelengths it is negligible (+0.38), and on the 3.2 and 145 cm wavelengths it is nonexistent (+0.1). (Gor'kovsk. n.-i. radiofiz. in-t, USSR).

A.S.

3.1720

69366

SOV/35-59-10-8034

Translation from: Referativnyy zhurnal. *Astronomiya i Geodeziya*, 1959, Nr 10, p 54 (USSR)

AUTHORS: Strezhneva, K.M., Plechkov, V.M., Starodubtsev, A.M.

TITLE: The Study of the Correlation of Intensity of Solar Radio Radiation With Visible Active Formations on the Sun. II.

PERIODICAL: *Solnechnyye dannyye*, 1958 (1959), Nr 8, pp 72-75

ABSTRACT: In addition to the correlation between the intensity of solar radio radiation and the areas of spots examined in Part I (*RZhAstr*, 1959, Nr 5, 3621), results are cited of the correlation between the intensities at the wavelengths of 3.2; 10 and 145 cm, measured during 1955 - 1957 and the areas of calcium flocculi, faculas and prominences. Likewise the flares of solar radio radiation are correlated with the chromospheric flares. For the period when the areas of spots changed only slightly, while the facula areas changed sharply (March 1956), the coefficients of the correlation of intensity at $\lambda = 10$ and 3.2 cm wavelengths with the areas of faculas were found to be equal to 0.3 and 0.44, respectively, and with the areas of flocculi - 0.2 and 0.38, respectively. For the period of a sharp change of pro-

Card 1/2

S/203/62/002/004/016/018
I046/I242

96150

AUTHORS: Kapustin, I.N., Starodubtsev, A.M. and Shafer, G.V.

TITLE: Circuit diagram for a transistorized neutron monitor

PERIODICAL: Geomagnetizm i aeronomiya, v.2, no.4, 1962, 777-781

TEXT: The transistorized circuit for neutron monitors is free from the basic faults of vacuum-tube circuits. By increasing the high voltage on the counters to 2200-2400 V (as compared to 1600 - 1800 V for conventional monitors), the amplification factor of the circuit is reduced to 500-1000 (as compared with $\sim 10^4$ in vacuum-tube circuits) and the latter becomes considerably less sensitive to noise. Since no frequent replacement of components is required, the amplification factor of the transistorized circuit is much more stable than that of the vacuum-tube circuit. The device is designed to operate on 110 to 120 V; when disconnected from the mains, the circuit switches over automatically to a 12 V battery. There are 10 figures. ✓

Card 1/2

S/203/62/002/004/016/018
1046/1242

Circuit diagram for a transistorized...

ASSOCIATION: Laboratoriya fizicheskikh problem Yakutskogo filiala
SO AN SSSR (Laboratory of Physical Problems of the
Yakutsk Division, SO AS USSR) ✓

SUBMITTED: March 8, 1962

Card 2/2

33777

S/108/62/017/001/004/007
D271/D304

9,2571 (1147)

AUTHOR: Starodubtsev, A.M., Member of the Society (see Association)

TITLE: A contribution to calculating optimal parameters of ferrite systems based on the Faraday effect

PERIODICAL: Radiotekhnika, v. 17, no. 1, 1962, 32 - 39

TEXT: Analysis of ferrite isolators and modulators aims at establishing methods for optimizing ferrite devices and studying their behavior, when operating with complex loads. A general ferrite system is shown in a figure; arrows drawn near the terminals of the eight-pole network show directions of electric vectors of forward or reflected waves. U_{in} , etc. are complex amplitudes of incident waves U_{10} , etc. are complex amplitudes of waves leaving the ports; γ_0 is the complex propagation constant in the part of the system which contains ferrite, and γ - complex propagation constant in all arms; θ - an angle of rotation of the polarization plane of the electric vector; l - electric length of the path; ρ - wave impedance.

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D271/D304

A contribution to calculating ...

ce of the transmission line; E - sources of signals and noise. Starting from the relations between incident and reflected waves on the left-hand and right-hand terminals of the system, the voltage on the load Z_1 , originating from the four existing sources, is found to consist of four components of the type:

$$U_{11} = \frac{1}{2} \left\{ 1 - \frac{p_1([A - p_2(AD - BC)])}{p_1 A (1 - p_2 D) - p_1 p_2 BC} \right\} (1 - p_1) E_1, \quad (4)$$

where A, B, C, D are functions of the rotational angle ξ , propagation constants, lengths of paths and reflection coefficients p. The voltage on terminals of port 1, due to thermal noise of the ferrite element and transmission lines, is determined by the impedance of port 1 which is equal to

$$Z_n = \frac{U_{11}}{I_1} = \frac{p [(1 - A)(1 - p_2 D) + p_2 BC](1 + p_1)}{(1 - p_1 A)(1 - p_2 D) - p_1 p_2 BC}. \quad (9)$$

It is assumed in the analysis of the ferrite isolator that energy

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S/108/62/017/001/004/007
D271/D304

A contribution to calculating ...

is passed from port 3 to port 1, that Z_2 and Z_4 are well matched loads and their temperature is equal to the ambient T_0 . Temperature of port 3 takes into account both noise and signal energy of Z_3 .

Spectral density components of the mean square of the full noise voltage in port 1, due to noise sources E_1, E_2, E_3, E_4 , and spectral density of the transmission line and ferrite element noise, are all written out. The forward attenuation of the signal travelling from 3 to 1 through the ferrite element is

$$K_{\text{forward}} = (1 - p_{30}^2) \frac{(1 + p_{10}^2 + 2p_{10} \cos \delta_1) e^{-2\alpha l_1}}{1 + p_{10}^2 p_{20}^2 p_{30}^2 p_{40}^2 e^{-4\alpha l} + 2p_{10} p_{20} p_{30} p_{40} e^{-2\alpha l} \times \rightarrow} \quad (15)$$

$\rightarrow \times \cos(2\beta l + \delta_1 + \delta_2 + \delta_3 + \delta_4)$
With ferrite attenuation of 1 dB and reflection coefficients $p = 0.2$ the useful signal is attenuated by 1.2 dB. Reverse attenuation of the signal travelling from 1 to 3 is

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D271/D304

A contribution to calculating ...

$$K_{\text{reverse}} = (1 - p_{10}^2) \frac{(1 + p_{30}^2 + 2p_{30} \cos \delta_3) p_{40}^2 p_{20}^2 e^{-2(\alpha l_{13} + \alpha l_{14} + \alpha l_{15})}}{1 + p_{10}^2 p_{20}^2 p_{30}^2 p_{40}^2 e^{-4\alpha l} + 2p_{10} p_{20} p_{30} p_{40} e^{-2\alpha l} \times \rightarrow} \quad (16)$$

$$\rightarrow \times \cos(2\beta l + \delta_1 + \delta_2 + \delta_3 + \delta_4)$$

Assuming values as before, reverse attenuation is 30 dB. Even small reflections from the loads cause interference errors; noise of Z_1 produces the strongest interference; the effect is much weaker than in systems without a ferrite isolator. The ferrite modulator is analyzed assuming that sources of power are connected to 3 and 4, Z_2 is an absorbing load, Z_1 and Z_2 are well matched. Spectral density components of the mean square of the full voltage in 1 will be of the type

$$W_{11} = kT_1 \rho \Delta f \left\{ 1 + \frac{1}{8} [p_{30}^2 e^{-4\alpha l_{13}} + p_{40}^2 e^{-4\alpha l_{14}} + 2p_{30} p_{40} e^{-2(\alpha l_{13} + \alpha l_{14})} \times \right. \quad (17)$$

$$\times \cos(2\beta l_{13} - 2\beta l_{14} + \delta_3 - \delta_4)] +$$

$$+ \cos 2\epsilon [p_{30} e^{-2\alpha l_{13}} \cos(2\beta l_{13} + \delta_3) + p_{40} e^{-2\alpha l_{14}} \cos(2\beta l_{14} + \delta_4)] +$$

$$\left. + \frac{1}{8} \cos 4\epsilon [p_{30}^2 e^{-4\alpha l_{13}} + p_{40}^2 e^{-4\alpha l_{14}} + 2p_{30} p_{40} e^{-2(\alpha l_{13} + \alpha l_{14})} \times \right.$$

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S/108/62/017/001/004/007
D271/D304

A contribution to calculating ...

$$x \cos(2\beta_{13} - 2\beta_{14} + \delta_3 - \delta_4)]\}, \quad (17)$$

and
$$W_{14} = \frac{1}{2} kT_4 \rho \Delta f (1 - p_{40}^2) (1 - \sin 2\xi) e^{-2\alpha_{14}}. \quad (20)$$

The expression is also written out for the spectral density of noise in the transmission line and ferrite. Two practical cases of modulation are considered, rectangular with the polarization plane oscillating according to the law

$$\xi = -\xi_0 + m(t)(2\xi_0 + \Delta\xi), \quad (22)$$

and sinusoidal with the law

$$\xi = \Delta\xi + \xi_0 \sin \Omega t, \quad (28)$$

where $\Delta\xi$ is the angle of space asymmetry. Expressions are derived for the components of the first harmonic of the modulating frequency. The optimal angle of modulation is found as 90° for the rectangular and 52.5° for the sinusoidal modulation. If space and time asymmetries are small, rectangular modulation brings a 9 % gain in

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A contribution to calculating ...

S/108/62/017/001/004/007
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the signal transfer factor by comparison with the sinusoidal modulation. If space asymmetry is present, a parasitic signal appears, stronger in the case of sinusoidal modulation. There are 1 figure, and 1 Soviet-bloc reference. +

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Scientific and Technical Society of Radio Engineering and Electrical Communications imeni A.S. Popov) [Abstractor's note: Name of association taken from first page of journal]

SUBMITTED: December 24, 1960 (initially)
May 18, 1961 (after revision)

Card 6/7₆

L 13758-65 ENG(j)/ENT(1)/ENT(m)/ENG(v)/FCC/EEC(t)/T Pa-5/Po-1/Pae-2/Pb-4
IJP(c)/AFMDC/AFETR/AFMD(t)/AFWL/AS(mp)-2/SSD/AFDC(a)/ASD(a)-5/ESD(ga)/ESD(dp)/
ESD(t) GW

ACCESSION NR: AP4044093

S/0141/64/007/003/0399/0405

AUTHOR: Starodubtsev, A. M. B

TITLE: Effective temperature of the lunar surface due to its re-
flection of cosmic radiation 12

SOURCE: IVUZ. Radiofizika, v. 7, no. 3, 1964, 399-405 19

TOPIC TAGS: lunar surface property, lunar reflectivity, lunar
temperature, lunar emission, cosmic radiation, dielectric constant

ABSTRACT: Straightforward geometrical-optics calculations are used
to determine the effective lunar-surface temperature at frequencies of
100, 200, and 400 Mc. The moon is assumed to be an ideally smooth
surface and have a dielectric constant ranging from 1.5 to 4. Al-
though the roughness of the moon must be taken into account in more
accurate calculations, this cannot be done at present until more
data are obtained on the reflecting properties of the moon's surface

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L 13758-65

ACCESSION NR: AP4044093

(by active radar methods). In addition to the obvious results, ⁴ that the brightness temperature due to the reflection increases with the dielectric constant and with the wavelength, the calculations also show that: a) the brightness temperature varies little with the ascension angle of the moon, with some increase in the temperature observed only near 280° , and b) the degree of polarization of the radiation reflected from the lunar surface increases somewhat with increasing dielectric constant, but does not exceed 10% for $\epsilon = 1.5$, and has an average value 2--5%. "The author thanks V. S. Troitskiy for suggesting the problem and for collaboration in its solution, V. A. Razin for valuable advice, and Ya. I. Al'ber for programming the problem and for carrying out the calculations on the electronic computer." Orig. art. has: 8 figures and 7 formulas.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute at the Gorkiy University)

Card 2/3

L 13758-65

ACCESSION NR: AP4044093

SUBMITTED: 19Mar63

SUB CODE: AA

NO REF SOV: 003

0
ENCL: 00

OTHER: 004

3/3

PUTVINSKAYA, T.M.; DYACHENKO, M.M.; STARODUBTSEV, A.M.

Melting point of monomethylamine chloride. Zhur. prikl. khim.
37 no.12:2764-2766 D '64. (MIRA 18:3)

1. Gosudarstvennyy institut prikladnoy khimii.

L 24838-65 ENT(m)/EPF(c)/ENP(j)/T Pc-L/Pr-L/Pa-L RM

ACCESSION NR: AP4047400

S/0062/64/000/010/1877/1879

24
23
B

AUTHOR: Andrianov, K. A.; Yezerets, M. A.; Shul'ga, F. F.; Starodubtsev, E. S.

TITLE: The synthesis of dimethyldichlorosilane

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1964, 1877-1879

TOPIC TAGS: dimethyldichlorosilane, synthesis, silicon copper alloy, catalyst activation, catalyst alloy structure

ABSTRACT: The reaction of methyl chloride with Si-Cu alloys was investigated to determine optimum conditions for the synthesis of dimethyldichlorosilane (DMDCS). The yield of DMDCS dropped sharply after about 5 hours reaction time; increasing reaction temperature and changing feed rate have no effect on the yield. Addition of group II metal halide promoters extended the time during which a high yield (80%) of DMDCS was obtained to about 15 hours. After 20 hours the yield dropped 20% from the maximum. Treatment of the alloy prior to activation with the metal halide however did not increase the yield of DMDCS but did increase

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L 24838-65

ACCESSION NR: AP4047400

methyltrichlorosilane and carbon yields. The use of a fine grain structured alloy increased DMDCS yield 10-12%. Copper in the alloy was found to cause side reactions, decomposition of the methyl chloride, formation of methyltrichlorosilane, methyldichlorosilane and carbon. On reducing the copper content in the alloy (Abstractor's note: composition was not indicated), 83-84% DMDCS was obtained for 10 hours and 80% yield was obtained even after 30-40 hours. Orig. art. has: 2 tables, 3 figures, and 3 equations.

ASSOCIATION: Institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova
(Institute of Fine Chemical Technology)

SUBMITTED: 13Feb64

ENCL: 00

SUB CODE: GC, OC

NO REF SOV: 002

OTHER: 004

Card 2/2

STARODUBTSEV, F. (Saratov)

Standard computations on keyboard calculating machines. Bukhg.
uchet. 15 no.8:35-42 Ag '56. (MLRA 9:10)

1. Zamestitel' glavnogo bukhgaltera Saratovskogo podshipnikovogo
zavoda.

(Machine accounting) (Production standards)

STARODUBTSEV, P.I.

Upper bushing of the main bearing of the KMTZ-NATI tractor with a modified
oil groove. Sakh.prom. 27 no.10:36 '53. (MLRA 6:11)

(Bearings (Machinery))

1. Sakharovyy zavod im. Lenina.

DASHKEVICH, N.N.; STARODUBTSEV, G.S.; GERMANOV, Ye.K.

Kimberlite pipes and the structure of the Chadobets uplift. Mat. po
geol. i pol.iskop.Kras.kraia no.3:117-130 '62. (MIRA 17:2)

STARODUBTSEV, I., mashinist elektrovoza

My plans. Mast. ugl. 7 no.8:24 Ag '58.

(MIRA 11:9)

1. Shakhta No. 30 tresta Bokovoantratsit.
(Donets Basin--Coal miners)

SHANDOR, K., dispatcher; SORGOVSKIY, V.; STARODUBTSEV, I., doverennyy vrach
(g.Sumy); RAZUMNYI, A.; TRUF'YACHENKO, B.

Contrasts in Sumy. Okhr. truda i sots. strakh. 3 no.7:58-59 J1
'60. (MIRA 13:8)

1. Reydovaya brigada. 2. Sumskiy remontno-stroitel'nyy trest
(for Shandor). 3. Tekhnicheskij inspektor Sumskogo oblssovprofa.
(for Sorgovskiy); 4. Korrespondent gazety "Leninskaya
pravda," g.Sumy (for Razumnyy). 5. Spetsial'nyy korrespondent zhurnala
"Okhrana truda i sotsial'noye strakhovaniye," g.Sumy (for Truf'yachenko).
(Sumy--Industrial hygiene)
(Women--Employment)

STARODUBTSEV, I. G.

4867. MAXIMUM PERMISSIBLE LIMITS OF CONCENTRATION OF EXPLOSIVE GASES IN MINE ATMOSPHERE. Starodubtsev, I. G. (Ugol (Coal), Sept. 1951, 27-30). The ignitability and explosibility of mixtures of air with hydrogen and with methane-heptane are considered and a method is suggested for calculating maximum safe concentrations. (L).

L 42060-65

FSS-2/EWT(1)/EWG(v)/EWA(d)/T/EED(b)-3

Pn-4/Pe-5/Pae-2 IJP(c) G4

UR/0286/65/000/007/0114/0114

ACCESSION NR: AP5010929

AUTHORS: Shugayev, G. A.; Starodubtsov, I. S.; Zakharov, V. I.

TITLE: Aerophotographic collimator sight. Class 42, No. 169822

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 7, 1965, 114

TOPIC TAGS: aerial photography, photographic optics, photographic device, 10

ABSTRACT: This Author Certificate presents an aerophotographic collimator sight containing a grid of filaments with the course indicating lines (see Fig. 1 on the Enclosure). The grid may be projected onto the surface of the ground by means of an optical device and a device for stabilizing the sight axis at a desired azimuth. To widen the angle of vision of the sight, the optical device is made in the form of a semitransparent curved mirror, as, for instance, parabolic-spherical. The grid is placed in the focus of this mirror. In an alternate design the rotor of the selsyn receiver is placed on the rotation axis of the sight. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 25Feb64

NO REF SOV: 000

Card 1/2

ENCL: 01

OTHER: 000

SUB CODE: ES

L 42060-65

ACCESSION NR: AP5010929

ENCLOSURE: 01

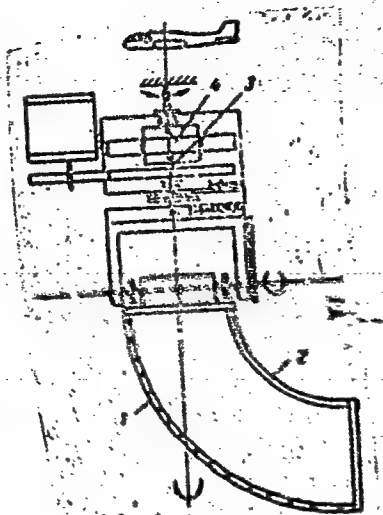


Fig. 1. 1- mirror; 2- grid of threads;
3- rotation axis of the sight; 4- rotor

am
Card 2/2

STARODUBTSEV, I.S.

Accidents can be prevented. Vest. sviati 25 no.3:24 Mr '65.
(MIRA 18:5)

1. Starshiy inzh. po tekhnike bezopasnosti Volgogradskogo oblastnogo
upravleniya svyazi.

Category : USSR
Category : CULTIVATED PLANTS, GRAINS
Ref. Contr. : REF ZHUR BIOL. 21.1958, NO-95967
Author : Starodubets, N.
Instit. :
Title : The Narrow-Row Planting of Millet

M

Orig. Pub. : Zemledeliye, 1957, No. 3, 79-80

Abstract : At Bazar-Syzganskiy Variety Plot in Ul'yanskaya Oblast' a trial was made in 1954-1956 of different methods of sowing the Dolinskoye 86 variety: wide-row (with 45 cm between the rows), uniform row and narrow-row planting (with 7.5 cm between the rows). The highest yield of 19.5 cwt/ha. was gotten with narrow-row planting. In wide-row sowing the plant viability was significantly less than in the narrow-row. The best time for planting millet by the narrow-row method in the gray forest

Card: 1/2

Category : CULTIVATED PLANTS. GRAINS

M

Abs. Jour. : REF ZHUR.BIOL.,21,1958, NO-95367

Author :

Institut. :

Title :

Orig. Pub. :

Abstract : soil of Ul'yanovskaya Oblast' is in the last five
days of May.--G.N. Chernov

Card: 2/2

KOVAL'CHUK, I.; STARODUBTSEV. N.

Today innovators are promoting research, tomorrow all workers
will take part in it. Mashinostroitel' no.10:8-9 0 '61.
(MIRA 14:9)

(Rostov-on-Don--Agricultural machinery industry)

BARBUKOVA, V.I., kand. ist. nauk; DEMIDOVA, Z.F., kand. ist. nauk;
POSELYANINA, O.K., kand. ist. nauk; SORIN, Yu.N., kand.
ist. nauk; SHATVOROVA, V.D., kand. ist. nauk; KHRUSHCHEV,
V.I.; STARODUBTSEV, N.I.; ~~SHVETS, N.Ye.~~; ~~TOROPCHIN, N.S.~~;
~~red. IVANOVA, R.N., tekhn. red.~~

[Krasnyi Aksay; from the history of the M.V.Frunze Rostov
Plant of Agricultural Machinery] Krasnyi Aksai; iz istorii
Rostovskogo zavoda sel'skokhoziaistvennogo mashinostroeni-
ia imeni M.V.Frunze. Rostov-na-Donu, Rostovskoe knizhnoe izd-
vo, 1962. 158 p. (MIRA 15:9)

1. Prepodavateli Rostovskogo gosudarstvennogo universiteta
(for Barbukova, Demidova, Poselyanina, Sorin, Shatvorova).
2. Otvetstvennyy sekretar' mnogotirazhnoy gazety "Krasnyy
aksayets" (for Khrushchev). 3. Zaveduyushchiy kabinetom po-
liticheskogo prosveshcheniya partiynogo komiteta Rostovskogo
zavoda sel'skokhozyaystvennogo mashinostroyeniya "Krasnyy
Aksay" (for Starodubtsev). 4. ~~Rabochiy remontno-mekhanicheskogo~~
tsekha Rostovskogo zavoda sel'skokhozyaystvennogo mashino-
stroyeniya "Krasnyy Aksay" (for Shvets).
(Rostov-on-Don--Agricultural machinery)

STARODUBTSEV, Nikolay Lukich; VASIL'YEV, A.I., kand. tekhn. nauk, otv. red.;
NAZARYANTS, T.M., red.; VYALYKH, A.M., tekhn. red.

[Power and fuel balance of Western Siberia] Toplivno-energeticheski
balans Zapadnoi Sibiri. Novosibirsk, Izd-vo Sibirskogo otdeleniia
AN SSSR, 1960. 52 p. (MIRA 14:7)
(Siberia, Western—Power resources)

STARODUBTSKY, N. I.

Over-all utilization of natural resources in Tyumen' Province based
on the development of its power resources. Izv. Sib. otd. AN SSSR
no. 5:3-11 '58. (MIRA 11:9)

1. Zapadno-Sibirskiy filial AN SSSR.
(Tyumen' Province--Natural resources)

VASIL'YEV, A.I., kand.tekhn.nauk; STARODUBTSEV, N.L., inzh.; CHEL'TSOV, M.B.
inzh.; SAVCHUK, M.G., inzh.

Peat is an important power fuel in Western Siberia. Torf. prom. 35
no.5:22-24 '58. (MIRA 11:10)

1.Transportno-energeticheskiy institut zapadno-sibirskogo filiala
AN SSSR (for Chel'tsov). 2.Novosibirskoye mezhoblastnoye upravleniye
torfyanogo fonda (for Savchuk).
(Siberia, Western--Peat)

M.

USSR/Cultivated Plants - Grains.

Abs Jour : Ref Zhur - Biol., No 4, 1958, 15581

Author : N.S. Starodubtsev

Inst :
Title : Buckwheat, a Valuable and Profitable Crop.
(Grechikha--tsennaya i vygodnaya kul'tura).

Orig Pub : S. kh. Povolzh'ya, 1957, No 6, 42-44.

Abstract : No abstract.

Card 1/1

5-4

KOZIN, N.I.; STARODUBTSEV, N.V.

Method for the manufacture of pastelike (cheese) emulsions.
Izv.vys.ucheb.zav.; pishch.tekh. no.5:130-136 '59. (MIRA 13:4)

1. Moskovskiy institut narodnogo khozyaystva imeni G.V.
Plekhanova, laboratoriya shirov.
(Cheese)

STARODUBTSEV, N.V.; RAKITIN, V.Yu.; MOROZOVA, L.A.

Homogenized food products in aluminum tubes. Trudy VNIKOP no.11:
7-11 '62. (MLA 17:9)

STARODUB'SEV, J. V.

Starodub'sev, J. V. "On the theory of formation of positive ions on incandescent electrodes", *Trudy Vsesoyuznogo Nauchno-Issledovatskogo Instituta Elektromekhaniki* (Izv. Akad. Nauk SSSR), Vol. 11, Issue 1, 1949, p. 5-18, - Bibliography: p. 17-18.

So: U-3261, 10 April 53, (Leton's 'Zhurnal 'Nykhs Statey, No. 12, 1949).

3

Electron emission of thin layers of boron oxide under the impact of positive ions. N. V. Starodubtsev. *Doklady Akad. Nauk S.S.S.R.* 62, 765 (1968). Thin layers of B_2O_3 , formed by evaporation and condensation, emit electrons under bombardment by K^+ ions. A sudden increase of the intensity of the emission is observed when the thickness of the layer reaches about 2×10^{-4} cm. At this stage, electron emission continues even when the pos. K^+ ions are shut off, under the sole influence of the pos. charge of the B_2O_3 film. The emission stops immediately when the elec. field is turned off; it can be renewed under the action of K^+ ions. Analogous phenomena were observed with films of MgO and BaO . The persistence of the emission without K^+ ions is attributed to collision ionization inside the dielectric, requiring a min. thickness. N. Thon

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

62941 634179

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSES AND PROPERTIES INDEX																			
<p>1730. Electron emission produced by bombarding dielectric membranes with positive ions. S. V. Starodubtsev. <u>Zhur. Khim. i Teor. Fiz.</u> 19, 297-9(1949) Apr. (in Russian) (See also NSA 2-1820),</p> <p>Emission of electrons from thin layers of dielectrics that have been subjected to a preliminary bombardment with positive ions was discovered by Walter (<u>Phys. Rev.</u> 49, 373(1936) and 50, 48 (1936)). The present author studied this effect on membranes of B_2O_3 and KCl, about 2×10^{-4} cm thick, bombarded by potassium ions. A steady electron emission was observed, lasting long after the bombardment had ceased. The phenomenon is explained by a continuous positive recharging of the membrane due to the ionization produced by the electrons during their passage through the membrane. 18 references, half of which are Russian.</p>																			
<p>ASM-51A METALLURGICAL LITERATURE CLASSIFICATION</p>																			
<p>RESEARCH DIVISION</p>										<p>TECHN. DIVISION</p>									
<p>SECTION 1</p>										<p>SECTION 2</p>									
<p>SECTION 3</p>										<p>SECTION 4</p>									

CA
Emission of positive ions by incandescent oxides of titanium, niobium, and silicon. S. V. Stupulyuk, and Yu. I. Timokhina (Leningrad Phys.-Tech. Inst., Zhur. Tekh. Fiz. 19, 900-10 (1949)). (1) The emission was investigated by mass spectrography, with powders of the oxides held in a heated W wire spiral, in a vacuum of 10^{-6} mm. Hg, acceleration to 1500 v. Presumably pure TiO_2 emitted, up to 1800°K., only ions of impurities, particularly mass 34 ascribed to HfO_2 , and K^+ and Na^+ ; the amt. of the latter impurity ($\text{K} + \text{Na}$) in the original prepn. could be estd. to $4 \times 10^{-4}\%$. Long heating at 1500°K. resulted in disappearance of the impurity ions, but HfO_2 , then K^+ and Na^+ , last Ca^+ . Ions of Ti^+ appeared at about 1600°K., followed, at still higher temp., by TiO^+ . These peaks increased on further heating to 2000°K., then decreased owing to evapn. of neutral Ti , TiO , and TiO_2 . The optimum temp. for production of Ti^+ ions is $\sim 2000^\circ\text{K}.$; at this optimum, about 0.1% of the Ti present is emitted in the form of ions. The product remaining in the spiral is dark and consists first, and disappears at about 1800°K. The optimum temp. for emission of Zr^+ is about 2200°K. The relative heights of the ZrO^+ and ZrO_2^+ peaks, falling on prolonged heating with the length of heating, is no so evidently results in at 2200°K. Long heating is no so evidently results in an impoverishment of the oxide in O and partial conversion of ZrO_2 to ZrO . With SiO_2 , emission of Si^+ and SiO^+ ions began at about 1800°K., i.e. close to the melting temp. of SiO_2 . At 1900°K., the main peak is that of Si^+ ; the peak of SiO^+ is relatively low. A SiO_2^+ peak appears at higher temps. With PbO , only emission of the impurity ions K^+ and Na^+ was observed between 800 and 1300°K.; heating to a higher temp. resulted only in dis-
solv. of the PbO and evapn. of Pb , and no emission of

either Pb^+ or PbO^+ ions. (2) That space ionization in the vapor phase surrounding the incandescent spiral plays no significant role as compared with the surface ionization, was demonstrated by expts. with a spiral of smaller diam. and smaller potential drop along the spiral; the emission of TiO^+ and ZrO^+ remained unchanged. However, with SiO_2 , emission of SiO^+ and SiO_2^+ ions was suppressed, and that of Si^+ very strongly reduced. Thus the emission of Ti^+ , TiO^+ , Zr^+ , and ZrO^+ ions is cer-
tainly due to surface ionization. SiO^+ and SiO_2^+ ions are most probably formed as a result of collisions of neu-
tral SiO and SiO_2 mole. with electrons, of the type $\text{SiO} + e \rightarrow \text{SiO}^+ + 2e$, and $\text{SiO}_2 + e \rightarrow \text{SiO}_2^+ + 2e$. This process is also responsible for the major part of the emission of Si^+ ions; part of these ions may originate in surface ionization. N. Thon

STARODUBTSEV, S.V.

Starodubtsev, S. V., The application of the method of modulated molecular clusters to the investigation of adsorption phenomena. P. 215.

For the measurement of the probability of evaporation of adsorbed atoms from the surface of a red hot metal, the method of modulated atomic or molecular clusters are proposed which are directed on the adsorbing thread. The change of the current of positive ions from the thread with time makes it possible to determine the probability of evaporation of the adsorbed atom per second and the heat of evaporation of the ion and atom. The method is checked on an example of adsorption of K and Na on W. Determination of the heats of evaporation $\lambda_{K^+} = 2.52 \text{ eV}$ and $\lambda_{Na^+} = 3.3 \text{ eV}$ are made.

The Leningrad
Physico-Technical Institute
July 20, 1948

SO: Journal of Experimental and Theoretic Physics (USSR) 19, No. 3 (1949)

STARODUBTSEV, S.V.; GURSKIY, M.N.; TSOY, A.N.

Measurement of large doses of gamma radiation on the basis of
a liquid scintillator. Izv. AN Uz. SSR. Ser. fiz.-mat. nauk
8 no.6:83-84 '64. (MIRA 18:3)

1. Institut yadernoy fiziki AN UzSSR.

S. H. K. 4. 1. 5. 5. 6.

LOVTSOV, V.M.; STARODUBTSEV, S.V.

Normal secondary ion-electron and electron-electron emission of thin potassium chloride films. Trudy FTI AN Uz SSR 3:45-56 '50.

(Thermalionic emission) (Electron emission) (MIRA 11:4)
(Potassium chloride)

STARODUBTSKY, S.V.

LOVISOV, V.M.; STARODUBTSKY, S.V.

Investigation of the correlation between normal secondary ion-electron, electron-electron emission, and the thickness of potassium chloride films. Trudy FFI AN Uz SSR 3:57-75 '50.

(Thermionic emission) (Electron emission) (MIRA 11:4)
(Potassium chloride)

LOVISOV, V.M.; STARODUBTSKY, S.V.

Use of the magnetic mass analyzer for studying the secondary ion
emission of dielectric films. Trudy FTI AN Uz SSR 3:111-116 '50.
(Ion beams) (Mass spectrometry) (MIRA 11:4)

ROMANOV, A.M.; STARODUBTSEV, S.V.

Surface ionization of lithium. Trudy FTI AN Uz.SSR 4:102-109 '52.
(Lithium) (Ionisation) (MLBA 9:1)

ST. STARODUBTSEV, S. V.

USSR/Physics - Photocells, Sensitive Layer

1 Aug 52

"Action of a Flow of Electrons on the Sensitive Layer of Tube Photocells,"
B.P. Angelov, Ye.M. Lobanov, S. V. Starodubtsev

"Dok Ak Nauk SSSR" Vol 85, No 4, pp 733-735

Studies the dependence of the current in the external circuit of electron-tube selenium and silver-sulfate photoelements, which are exposed to an electron beam, upon energy (800-20,000 ev) and upon intensity of the electron beam. Concludes that exposure of a tube photocell to an electron beam leads to the formation of a tube emf of the same sign as the photo-emf, and that electron beams can be utilized to study the properties of blocking layers in tube photocells. Submitted 3 Jun 52.

PA 227T72

STARODUBSEV, S. V.

Electronics, Electronic and Ionic Emission (1731)
Dokl. AN Uzb. SSR, No 1, 1953, pp 12-16. "Method of Double Modulation for the
Investigation of Secondary Emission Under the Action of Collision by Ions."

To investigate the dynamics of secondary ionic emission a method was developed that permits one to study the time characteristics of secondary processes. A beam of ions is freed of neutral particles and is modulated with respect to intensity by an oscillator generating rectangular impulses with a frequency of 500-1,000 cps (first modulation is directed against an incandescent target); the secondary ions are gathered by a collector whose potential relative to the target is modulated by a saw-toothed oscillator of 25 cps (second modulation).

SO: Referativnyy Zhurnal--Fizika, No 2, Feb 54; (W-30785, 28 July 1954)

STARODUBTSEV, S.V., VOZNESENSKIY, V.L., NOSENKO, B.M.

"Reaction Depth of an Ionic Stream on a Crystal" Dokl. AN Uz
SSR, No 8, 1954, 9-14

A method of determining the penetration depth of an ionic stream was suggested by using the properties of weakened luminescence in the crystallophor layer deteriorated by ionic penetration. Zn_2SiO_4 Mn was studied. The initial behavior of luminescence curves under electron excitation shows that no sharp boundary of the curve deterioration layer exists. The relation of penetration depth to ion energy is nearly linear and only slightly depends on the type of ions. (RZhFiz, No 11, 1955)

Starodubtsev, S. V.

1923. Method of investigating the secondary emission by bombarding conductors with ions. U. A. ARIFOV, A. KH. AYUKHANOV and S. V. STARODUBTSEV. Zh. eksper. teor. Fiz., 26, No. 6, 714-22 (1954) In Russian.

Usually the phenomena of secondary emission under ion impact are investigated by directing an ion beam from a suitable source on a target, the secondary electron and ion emissions being measured by circuits containing galvanometers and permitting primary and secondary ion currents and secondary electron emission to be separated by suitable change-over operations. The main difficulty in investigating the secondary emission resides in obtaining a pure target surface, and even more, in maintaining the purity of the target surface during the long-duration measurements by galvanometric methods. That is why in most cases the results were obtained not really on the target surface but on undefined adsorbed layers on the target. If, on the other hand, the target is maintained at high temperature to assure desorption of the adsorbed layers, the bombarding ions would also be desorbed and therefore be measured with the secondary particles, thus vitiating the secondary-emission coefficients measured. Comprehensive investigations led to the conclusion that only very rapid methods of

measurement permit exact determinations of secondary emission to be carried out, the influence of temperature and other factors on magnitude and character of this emission to be established and clear and reliable results to be obtained. Only c.r.o. methods can satisfy the requirements; a promising new oscillographic method is that of double modulation, by which the actual secondary emission can be effectively separated from the current of surface ionization of the target. The circuits and set-ups for these methods are described and the possibility of the separation of the various components is proved theoretically. A series of oscillograms of VA-characteristics of the secondary emission of tantalum and tungsten targets of temperatures 300-1350°K shows the possibilities of the new methods.

B. F. KRAUS

Physicotech. Inst, A.S. USSR

137-58-6-13172

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 284 (USSR)

AUTHORS: Romanov, A.M., Starodubtsev, S.V.

TITLE: On the Role of Heterogeneity of a Surface During Adsorption and Ionization of Sodium and Lithium on Tungsten (O roli neodnorodnosti poverkhnosti pri adsorbtsii i ionizatsii natriya i litiya na vol'frame)

PERIODICAL: Izv. AN UzSSR. Ser. fiz.-matem. n., 1957, Nr 3, pp 11-26

ABSTRACT: Evaluation of the influence of spottiness (heterogeneity) of a surface on the emission constants of W by means of comparison of data of electronic and ionic emission. Cathodes with three sets of spots (differing in work-function potential ϕ_i) and six possible types of distribution of fractions of area occupied by various kinds of spots were examined. The portion of full flow of electron emission from spots ω_i at different temperatures was calculated, and it was found that ϕ_{min} from spots ω increases with decrease in temperature. The apparent (average) work-function potential has a temperature coefficient at variance with zero, even when ϕ_i does not depend on the temperature. The ionization coefficients of Na and Li on W and

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137-58-6-13172

On the Role of (cont.)

portions of the full current of ion emission withdrawn from spots of i -th type were calculated for selected types of spots. Also, the relative values of the energy of adsorption of atoms of Na on different planes of adsorption of facets of W. Interaction between adsorbed atoms was not taken into account. It is demonstrated that heterogeneity of surface manifests itself differently in relation to adsorption and to ionization of NaLi. Sections on which NaLi are bonded the strongest become "inactive" as to ionization. The portion of ionic current is the greatest at spots having the highest value of ϕ . Comparison data on the ionic and electronic emission leads to the conclusion that the difference in apparent work-function potential determined by these two methods, all other conditions being equal, increases as the temperature of the surface diminishes. Bibliography: 22 references.

1. Tungsten--Surface properties
 2. Tungsten--Electrical properties
 3. Tungsten--Adsorptive properties
 4. Sodium atoms--Adsorption
 5. Thermionic emission--Analysis
 6. Ionic current
- I.D.

Card 2/2

PA - 2799

AUTHOR:

TITLE:

PERIODICAL:

ABSTRACT:

STARODUBTSEV, S.V.

ROMANOV, A.M. and STARODUBTSEV, S.V.

Adsorption and Ionization of Sodium on Hot Wolfram.
(Adsorbtsiya i ionizatsiya natriya na goryachen vol'fram, Russian)
Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 4, PP 722 - 733 (U.S.S.R.)

Reviewed: 6 / 1957

Received: 5 / 1957

In order to be able to answer the questions as to whether any peculiarities are to be observed in connection with the adsorption and ionization of sodium atoms, and, if so, of what nature they are and what reasons are responsible for such nature, tests were carried out with pure tungsten (wolfram), the influence exercised by the various factors connected with the experiments was investigated and evaluated, and, thirdly, the pressure range of the sodium vapors was extended. Experiments were carried out by means of two types of tightly soldered bulbs. The ionization of sodium was examined in accordance with the focussed beam method, and experiments concerning the adsorption and the ionization of sodium were carried out at low vapor pressures. In the latter case the "flaming" method was used. Analysis of measuring results obtained for the sodium samples showed that the fact that experimental results exceed the computed values of the ion current (in the case of homogeneous surface) cannot be explained by any impurity of the bundle by foreign basic atoms. Such circumstances are enumerated as make consideration of the inhomogeneity of the surface, just in the case of

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PA - 2799

Adsorption and Ionization of Sodium on Hot Tungsten.

sodium, of tungsten (wolfram) appear to be of particular importance. It is shown that the part played by oxygen spots on tungsten is of minor importance, and that with their aid the "anomalous" course of the curves of the ion current cannot be explained. It may be assumed that the peculiarities connected with the adsorption and ionization of sodium are due to the inhomogeneity of the surfaces used. In this connection it is of essential importance that inhomogeneity with respect to adsorption and ionization differs in that those domains in which the binding of sodium atoms is strongest are not active with respect to ionization. It may be assumed that, conditions otherwise being equal, the domains with loose structure are the first to be filled up.
(21 illustrations and 11 citations from Slav publications)

ASSOCIATION: LFTI of the Academy of Science of the U.S.S.R., Leningrad

PRESENTED BY:

SUBMITTED: 1.11.1956

AVAILABLE: Library of Congress.

Card 2/2

STARODUBTSEV, S.V.

AUTHORS:

Arifov, U. A., Ayukhanov, S.K., Starodubtsev, S. V., 56-4-3/54

TITLE:

On the Coefficient of Diffusion of Ions as a Function of the Ratio of the Masses of Colliding Particles (O zavisimosti koeffitsiyenta rasseyaniya ionov ot sootnosheniya mass stalkivayushchikhnya chastits)

PERIODICAL:

Zhurnal Eksperim i Teoret. Fiziki, 1957, Vol. 33, Nr 4, pp. 845-850, (USSR)

ABSTRACT:

By means of the method of double modulation the secondary emission of ions was investigated for the case that the masses of the bombarding ions are larger than the atom masses of the target. The following conclusions may be drawn.

- 1) Positive Cs-ions enter into interaction with nickel atoms according to the condition $V_i \varphi, m_1, m_2$:
 - a) Neither in the case of a cold (300°K) nor of a hot nickel surface (1350°K) may there be detected any secondary ion-electron emission
 - b) The secondary ion emission from a pure nickel surface (at high temperature) contains only the vaporized ions which formed on the surface of the target after a diffusion process.
- 2) Positive Ba-ions enter interaction with molybdenum atoms according to the condition $V_i \varphi, m_1, m_2$:
 - a) Neither in the case of a cold (300°K) nor of a warm molybdenum surface (1300°K) may there be detected any secondary ion-electron

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On the Coefficient of Diffusion of Ions as a Function of the Ratio of the Masses of Colliding Particles. 56-4-3/54

emission.

b) No secondary ion emission is observable.

There are 4 figures and 4 Slavic references.

ASSOCIATION: Physico-technical Institute AN Uzbek SSR (Fiziko-tekhnicheskiy institut Akademii nauk Uzbekskoy SSR)

SUBMITTED: April 10, 1957

AVAILABLE: Library of Congress

Card 2/2

PHASE I BOOK EXPLOITATION

SOV/1444

21(7)

Starodubtsev, S.V. and A.M. Romanov

Radioaktivnyye prevrashcheniya yader i atomnaya obolochka (Radioactive Transformations of Nuclei and the Atomic Shell) Tashkent, Izd-vo AN Uzbekskoy SSR, 1958. 498 p. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk Uzbekskoy SSR. Institut yadernoy fiziki.

Ed. of Publishing House: Gaysinskaya, I.G.; Tech. Ed.: Sharikova, V.P.

PURPOSE: The book is intended for experimental physicists. It is assumed that the reader is acquainted with the principles of quantum mechanics.

COVERAGE: The author covers a wide range of theoretical and experimental problems encountered in the study of radioactive transformation. Considerable attention is devoted to the role of atomic shells in processes of radioactive transformations. Experimental methods of investigating radioactive transformations which are directly connected with the shell (electron capture, γ -ray conversion), are covered

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2

Radioactive Transformations (Cont.)

SOV/1444

in detail. The author considers the influence of shells on the lifetime of radioactive atoms, on energy spectra and on angular correlation of nuclear radiation. The work done in spectrometry of recoil atoms and correlation of the direction of dispersion and polarization of particles during β -transformation is analyzed in connection with the problem of the neutrino and the problem of β -interaction. The examination of secondary effects during β -disintegration (internal bremsstrahlung, pair production, etc.) and also the theoretical and experimental research on the excitation and ionization of atoms and molecules during radioactive transformation occupy an important place in the book. Practical methods of separating isotopes and isomers, based on kinetic and electron "activation" of recoil atoms, are described. No personalities are mentioned. There are 523 references, 117 of which are Soviet.

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Foreword

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2

ARIFOV, U.A.; AYUKHANOV, A.Kh.; STARODUBTSEV, S.V.

Secondary emission of negative particles during the bombardment of foreign films on pure metals with alkali metal ions. Izv. AN Uz.SSR. Ser. fiz.-mat. nauk no.2:107-115 '58. (MIRA 11:10)

1. Fiziko-tekhnicheskiy institut AN UzSSR.
(Ion beams) (Alkali metals)

ARIFOV, U.A.; AYUKHANOV, A.Kh.; STARODUBTSEV, S.V.; KHADZHIMUKHAMEDOV, Kh.Kh.

Methods for investigating secondary processes caused by ions at
high target temperatures during thermoelectronic emission. Izv.
AN Uz.SSR.Ser.fiz.-mat.nauk no.5:15-22 '58. (MIRA 11:12)

1. Fiziko-tekhnicheskiy institut AN UzSSR.
(Electron emission)

STARODUBTSEV, S.V.

Second International Conference of the United Nations on the
Peaceful Use of Atomic Energy. Izv. AN Uz. SSR. Ser.fiz.-mat.
nauk no.6:87-88 '58. (MIRA 12:2)
(Atomic weapons and disarmament)

STARODUBTSEV, S V.

PHASE I BOOK EXPLOITATION

SOV/4586

Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii. Tashkent, 1959

Tezisy dokladov (Outlines of Reports of the Tashkent Conference on the Peaceful Uses of Atomic Energy) Tashkent, Izd-vo AN Uzbekskoy SSR, 1959. 229 p.
2,000 copies printed.

Sponsoring Agencies: Akademiya nauk Uzbekskoy SSR; Nauchno-tekhnicheskiy komitet Soveta Ministrov UzSSR.

Resp. Ed. for this book: L.G. Gurvich; Ed. of Publishing House: I. G. Gaysinskaya;
Tech. Ed.: V. P. Bartseva.

PURPOSE: This book is intended for nuclear physicists and other members of the scientific community interested in recent progress in the peaceful uses of atomic energy.

COVERAGE: This collection of abstracts of reports and papers read at the Tashkent Conference on the Peaceful Uses of Atomic Energy reports on research on a number of theoretical problems in nuclear and radiation physics, practical problems

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SOV/4586

Outlines of Reports of the Tashkent Conference (Cont.)

and methods in the preparation of radioactive isotopes, and the application of isotopes in industry, geology, agriculture, medicine, plant and animal biology, and other branches of the national economy and scientific research. The Table of Contents has been expanded to include authors and titles of abstracted papers appearing in section headings "Plenary Sessions" through "Radioactive Isotopes and Nuclear Radiations in Chemistry". No personalities are mentioned. There are no references.

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Plenary Sessions

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[Kulish, Ye. Ye., and G. M. Fradkin, Glavnoye upravleniye po ispol'zovaniyu atomnoy energii pri Sovete Ministrov SSSR (Main Administration for Utilization of Atomic Energy of the Council of Ministers of the USSR). Production of Radioactive Isotopes in the Soviet Union]

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Investigation of Change in Properties of Matter in Intense Fields of
Nuclear Radiation] 7

[Savitskiy, P. S., and V. I. Sinitsyn, Main Administration for the
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USSR. Perspectives for the Peaceful Utilization of Atomic Energy
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[Turakulov, Ya. Kh., Institut krayevoy meditsiny AN UzSSR (Insti-
tute of Regional Medicine of the AS Uzbekskaya SSR). Present State
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- [Denisov, F. P., K. V. Kosareva, and P. A. Cherenkov, Physics Institute imeni P. N. Lebedev AS USSR. Radiation Mechanism of Nuclear Fragments] 18
- [Azimov, S. A., U. G. Gulyamov, and B. Rakhimbayev, Fiziko-tekhnicheskii institut AN UzSSR (Physicotechnical Institute AS Uzbekskaya SSR). Investigation of Excited Fission Fragments] 18
- [Velyukhov, G. Ye., A. N. Prokof'yev, and S. V. Starodubtsev, Leningradskiy fiziko-tekhnicheskii institut AN SSSR (Leningrad Physicotechnical Institute AS USSR). Investigation of the Reactions of Capture by P^{19} and P^{31} at Neutron Energies of 14.1 Mev] 19
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SOV/4586

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SOV/4586

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SOV/166-19-1-9/11

5(4)
AUTHORS: Starodubtsev, S.V., Member AS Uz SSR,
Ablyayev, Sh.A., and Generalova, V.V.

TITLE: Radiolysis of Saccharose (Radioliz. sakharozy)

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-
matematicheskikh nauk, 1959, Nr 1, pp 75-80 (USSR)

ABSTRACT: The influence of γ -rays (Co^{60}) to the water solution of
saccharose is investigated. It is stated: 1) change of the
specific rotation of the plane of polarization; 2) this change
increases with the radiation and decreases with the concentrat-
ion of the solution; 3) here the decision depends on the solvent;
4) a great quantity of hydrogen, oxygen, CO_2 and several hydro-
carbons is separated; 5) change of the solution velocity in
water; irradiated saccharose is solved ca. 2-3 times quicker
than the non-irradiated saccharose; 6) change of the colour of
the solution.
There are 15 references, 5 of which are Soviet, 2 English, and
8 American.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN Uz SSR (Physico-Technical
Institute, AS Uz SSR)

SUBMITTED: September 10, 1958
Card 1/1

~~24(3), 24(4), 21(7)~~ 24,6800

66529

AUTHORS: Lobanov, Ye.M., and Starodubtsev, S.V. SOV/166-59-3-2/11

TITLE: Investigation of the Electromotive Force Which Arises During the Irradiation of the Photovoltaic Cell With α -Particles

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1959, Nr 3, pp 5-17 (USSR)

ABSTRACT: The investigation was carried out 1) for the determination of the optimal conditions for the construction of economic atomic sources of current and 2) because the application of particles with a bounded and easily measurable free path represents a sensible mean for the investigation of processes in the immediate neighborhood of the photovoltaic cell. Similar questions are treated by the author and others in [Ref 1,2,3]. Principal results of the present paper: The current in the outer circuit of the photocell irradiated with α -particles is proportional to the intensity of the flow of the particles falling into the cell. The photovoltaic cells can be used for the measurement of the intensity of flow of charged particles. For an increasing total dose of the radiation the current decreases somewhat in the outer circuit of the irradiated chain. From the curve "current in the outer circuit - energy of the

Card 1/2

21(1), 21(7) 24.6510 665:3
 AUTHORS: Starodubtsev, S.V., and Khrushchev, B.I. SOV/166-59-3-7/11
 TITLE: Angular Distributions for Protons of the Reaction $B^{10}(d,p)B^{11}$
 PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-
 matematicheskikh nauk, 1959, Nr 3, pp 47-51 (USSR)
 ABSTRACT: The paper contains the results of an experimental investigation
 of the angular distribution of protons of two groups
 $p_0(Q=9.24 \text{ MEV})$ and $p_1(Q=7.1 \text{ MEV})$ for the reaction $B^{10}(d,p)B^{11}$
 for four values of the energy of falling deuterons: $E_d=5; 5.75;$
 6.45 and 7.25 MEV . The investigation was carried out in a chamber
 analogous to that described in [Ref 8]. The recording of the
 secondary protons was carried out with the aid of thick-layer
 photo emulsions. The results are represented in several figures.
 The authors try to explain the deviations from the theoretical
 data [Ref 9]. There are 9 figures, and 19 references, 3 of
 which are Soviet, 1 English, and 15 American.
 ASSOCIATION: Institut yadernoy fiziki AN Uz SSR (Institute of Nuclear Physics
 AS Uz SSR)
 SUBMITTED: February 5, 1959

Card 1/1

~~24(4)~~ 24,7700 66334
 AUTHORS: Niyazova, O.R., and Starodubtsev, S.V. SOV/166-59-3-9/11
 TITLE: The Process of the Activation in a Monocrystalline Cadmium Sulphide Irradiated by X-Rays
 PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1959, Nr 3, pp 65-69 (USSR)
 ABSTRACT: By an experimental investigation the authors come to the following results: If a monocrystalline cadmium sulphide is irradiated with a broad bundle of X-rays, then the obtained electrical current very quickly reaches its stationary value (uniform distribution of the current carrier in the crystal!). The irradiation of a local zone lying in the mid-section of the crystal leads to slow current variations depending on the antecedent of the crystal: If the crystal previously was irradiated broadly, then the current very quickly reaches a large stationary value; if the crystal previously was not irradiated, then there appears a slow enlargement of the conductivity. During the experiments the current increased by several hundred times (activation!). In room temperature an excited crystal remains in the excited state a long while.

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21(7)

AUTHORS:

Khrushchev, B.I. and Starodubtsev, S.V., Academician AS UzSSR

TITLE:

On the Interaction of Deuterons With the Nuclea B^{10}

PERIODICAL:

Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1959, Nr 4, pp 3-8 (USSR)

ABSTRACT:

The authors investigate the question whether the reaction $B^{10}(d,p)B^{11}$ in essential appears by a formation of a compound nucleus or by a direct nuclear interaction. Therefore with the aid of a multiple-plate camera the cross sections (with an exactness of $\pm 30\%$) and the angular distributions were determined. The experiments are described in [Ref 11]. The dependence of the distributions on the energy E_d is not large, in all cases the distributions show a characteristic maximum clearly displaced towards the left hand side ($\sim 20^\circ$). By the considerations of [Ref 9,10] this assertion allows to conclude that the considered reaction in the case of the transition to the second and third state of excitation in essential appears at the surface of the nucleus by a direct interaction under participation

Card 1/2

06374
SOV/166-59-5-1/9

24(4);24(7);23(1)
AUTHORS: Lobanov, Ye.M., Romanov, A.M., and
Starodubtsev, S.V.

TITLE: Multi-Angular Magnetic Broad-Band Spectrograph

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-
matematicheskikh nauk, 1959, Nr 5, pp 3-11 (USSR)

ABSTRACT: The authors point out the necessity to construct a magnetic
spectrograph having the advantages of the spectrograph of
Buechner [Ref 18, 19] but simultaneously having the following
properties: 1) resolving power of 0.1% for a relative solid
angle $\sim 10^{-4}$ ster; 2) simultaneous investigation of particles in
an utmost large interval of energy; 3) simultaneous measurement
of the distribution of energy for 10-15 different departure
angles; 4) covering of the angular domain from 0 to 170° by
every 2-3°; 5) usefulness for rigid and gaseous targets. Such
a spectrograph is called a multi-angular magnetic broad-band
spectrograph. The authors discuss questions combined with the
construction of this device. The ionic optics calculated by
Leise [Ref 20] is recommended. The entrance in and the
departure of the particles from the camera shall be made like

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the authors mention L.M.Nemenov, N.A.Vlasov, V.F.Litvin, and
V.P.Rudakov.

There are 6 figures and 21 references, 6 of which are Soviet.

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001652920019-6"

ASSOCIATION: Fiziko-tehnicheskiy institut AN SSSR; Institut yadernoy
fiziki AN Uz SSR (Physical-Technical Institute AS USSR;
Institute of Nuclear Physics AS Uz SSR)

SUBMITTED: April 20, 1959

Card 2/2

21(7)

AUTHORS:

Starodubtsev, S. V., Makaryunas, K. V. SOV/56-36-5-61/76

TITLE:

The Angular Distributions of Tritons From the Reaction
 $\text{Li}^7(\alpha, t)\text{Be}^8$ (Uglovyye raspredeleniya tritonov iz reaktsii
 $\text{Li}^7(\alpha, t)\text{Be}^8$)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
 Vol 36, Nr 5, pp 1594-1595 (USSR)

ABSTRACT:

In order to obtain information concerning the reaction mechanism the authors of the present "Letter to the Editor" investigated the angular distributions of tritons in the aforementioned reaction at $Q = -2.56$ Mev by the method of the thick photoemulsion. The α -particles were accelerated on the cyclotron to 8.34, 10.15, 11.5, 13.2 and 14.7 Mev. At all these energies similar angular distributions were obtained. The curves obtained representing the dependence of the differential cross section (in relative units) on the angle in the center of mass system is shown for $E_\alpha = 14.7$ Mev by the upper and for $E_\alpha = 13.2$ Mev by the lower figure. The form of the angular distributions and their weak dependence on the energy of the bombarding

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The Angular Distributions of Tritons From the Reaction $\text{Li}^7(\alpha, t)\text{Be}^8$ SOV/56-36-5-61/76

α -particles indicates the important part played by the direct interaction mechanism. A comparison with Butler's theory shows good agreement for $l = 1$ between the theoretical and the experimental curve. The absolute values of the differential cross sections at 16° (center of mass system) are given as amounting to $9.2^{+3.7}_{-1.85}$ mb/steradian ($E_\alpha = 13.2$ Mev) and $9.4^{+4.0}_{-2.0}$ mb/steradian ($E_\alpha = 14.7$ Mev). There are 2 figures and 2 references.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskii institut (Leningrad Physico-Technical Institute)

SUBMITTED: February 4, 1959

Card 2/2

BEL'SKIY, S.A.; STARODUBTSEV, S.V.

Rayleigh scattering of γ -rays from Co^{60} at small angles. Zhur.
eksp. i teor. fiz. 37 no. 4: 983-990 0 '59. (MIRA 13:5)

1. Leningradskiy fiziko-tekhnicheskii institut Akademii
nauk SSSR. (Gamma rays--Scattering)

SOV/20-124-1-16/69

9(3)

AUTHORS:

Arifov, U. A., Academician, AS Uzbekskaya SSR, Ayukhanov, A. Kh.,
Starodubtsev, S. V., Academician, AS Uzbekskaya SSR, Khadzhimukha-
medov, Kh. Kh.

TITLE:

On a Method of Investigating the Secondary Processes Which Are
Caused by Ions at High Temperatures of the Target in the Case of
a Thermoelectronic Emission (O metodike issledovaniya vtorichnykh
protssessov, vyzyvayemykh ionami pri vysokikh temperaturakh misheney
v prisutstvii termoelektronnoy emissii)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol. 124, Nr 1, pp 60-62 (USSR)

ABSTRACT:

It was interesting to perfect the method of double modulation used
for the investigation of secondary ion processes at high tempera-
tures (at which a flux of thermal electrons exists). The apparatus
used was similar to one that has already been described (Ref 2),
with the exception that an electrically heated filament was sub-
stituted for the plane target. A schematical drawing shows the
principles of the electric wiring diagram. Target temperature was
determined from the heating current and from the diameter of the
filament; the work function was determined by the method of
Richardson straight lines, taking a correction for the Schottky
effect into account. The primary and secondary ion fluxes and also

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SOV/20-124-1-16/69

On a Method of Investigating the Secondary Processes Which Are Caused by Ions at High Temperatures of the Target in the Case of a Thermoelectronic Emission

the current intensity of the thermal electrons were determined from the coordinates of oscillograms. In the case under investigation the application of the method of double modulation is reduced to the following: the primary ion beam accelerated by the field is modulated with respect to intensity by a generator for rectilinear pulses with a frequency of 500 - 1000 cycles (first modulation) and directioned on to the target. The flux of the secondary emission from the target is then collected by a collector and is transmitted to the input of the vertical amplifier of an oscillograph. The horizontal development of this oscillograph is synchronized with the generator of the saw-tooth pulses. Three oscillograms of a

filament-like W-target (which was bombarded with 840 ev K^+ -ions) are added at 1800° K. Secondary ion emission consists of 3 components. On the basis of the here discussed examples it is possible to define the coefficient of the secondary ion emission as the ratio of the sum of components of the secondary ion fluxes to the primary ion flux. The amount of this coefficient depends in a complicated manner on the energy, the ionization potential, the mass of ions, the temperature, the work function, and the mass of the ions contained in the target. It is thus possible, by the here discussed

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On a Method of Investigating the Secondary Processes Which Are Caused by Ions
at High Temperatures of the Target in the Case of a Thermoelectronic Emission

improved method of double modulation, separately to investigate
the individual components of secondary emission, viz: the amperages
of the scattered, evaporated, and diffused ions, as well as the
thermoelectrons occurring in the bombardment of pure metal targets
by positive ions (at high temperature in the presence of consider-
able thermoelectronic emission). There are 2 figures and 3 Soviet
references.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk UzSSR
(Physico-Technical Institute of the Academy of Sciences, Uzbekskaya
SSR)

SUBMITTED: August 29, 1958

Card 3/3

21(5)
 AUTHORS: Velyukhov, G. Ye., Prokof'yev, A. N., Starodubtsev, S. V.,
 Academician of the UzSSR
 TITLE: Investigation of the Reactions $F^{19}(n,d)O^{18}$ and $P^{31}(n,d)Si^{30}$ at
 a Neutron Energy of 14.1 Mev
 PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 4, pp 781-783
 (USSR)
 ABSTRACT: The present paper investigates the pick-up reaction (n,d)
 proceeding without the formation of a compound nucleus of the
 reactions mentioned in the title. The reaction $T(d,n)He^4$ was
 used as a neutron source at deuteron energies of 260 kev. A
 proportional counter was used as a monitor; the absolute
 measurement was carried out with the α -particles originating
 from the source reaction and recorded by means of a
 scintillation counter with CsJ(Tl)-crystal. A telescope
 consisting of two proportional scintillation counters was used
 for investigating the reaction products; the telescope was
 placed in the same chamber as the reaction target. One of the
 proportional counters was used for measuring the losses, the
 other one for determining the reaction energy which made it

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SOV/20-127-4-14/60

Investigation of the Reactions $F^{19}(n,d)O^{18}$ and $P^{31}(n,d)Si^{30}$ at a Neutron Energy of 14.1 Mev

possible to determine these two factors at the same time. The results on the reaction energies agreed with those found by Wolfe et al (Ref 6). The differences in the energy losses for protons and neutrons of the same energy amounted to ~75%. Therefore, both particles could be reliably identified. The angular distribution of the secondary particles was determined from the change in the angle between the telescope axis and the direction in which the neutrons escaped. The background was determined under all angles under which the investigations were carried out. The energy spectra of the deuterons of the two reactions for the angle $\theta=0$ are indicated in figures 1 and 2. Figure 3 shows the energy spectra of the deuterons of both reactions under $\theta = 20^\circ$, and figure 4 the deuteron angular distribution of both reactions (transition into the ground state); besides the experimentally determined values, all diagrams also contain the theoretical curves (Butler et al).

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Investigation of the Reactions $F^{19}(n,d)O^{18}$ and
 $P^{31}(n,d)Si^{30}$ at a Neutron Energy of 14.1 Mev

SOV/20-127-4-14/60

The value -5.9 ± 0.3 Mev was obtained for the Q of the first reaction, and $Q = -5.2 \pm 0.2$ Mev was found for the second reaction. In the first case, besides the transition into the ground state, transitions to higher energy levels take place. The angular distribution was in good agreement with the theoretical values found by Butler (Ref 9). Finally, the authors thank A. P. Pulin and A. M. Tsvetkov for their assistance in the experiment. There are 4 figures and 12 references.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Institute of Physics and Technology of the Academy of Sciences, USSR)

SUBMITTED: May 23, 1959

Card 3/3

66473

24(8) 5.4500(B)

AUTHORS:

Starodubtsev, S. V., Academician, Academy of Sciences,
UzbekskayaSSR, Ablyayev, Sh. A., Yermatov, S. Ye.

TITLE:

Variation of Adsorptive Properties of Silicagel Under the
Action of Gamma-irradiation

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1,
pp 72 - 73 (USSR)

ABSTRACT:

Ionisation and excitation of atoms and molecules as well
as displacement of the atoms is caused in solids under the
action of penetrating rays. It becomes manifest by an ex-
ternal variation of the mechanical, optical, electrical,
physico-chemical, and chemical properties of the bodies.
Different preliminary works dealing with this subject are
shortly reported. The properties of irradiated silicagel have
hitherto been investigated only by A. N. Terenin et al
(Refs 6,7). These authors irradiated silicagel by ultraviolet
rays and showed, that a process occurs, similar to that on
heat treatment, i. e. hydroxyl groups are separated and free
valences occur at the surface. Present paper describes
the experimental investigation of adsorptive properties,

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Variation of Adsorptive Properties of Silicagel
Under the Action of Gamma-irradiation

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SOV/20-129-1-19/64

basing on the adsorption of gases, measured by means of thermocouples and ionization manometers. Experimentally produced silicagels of the type KSK were used for this experiment. Prior to the investigation, these silicagels were subjected to careful, long lasting heat treatment, and were then irradiated by γ -rays (dose rate $15 \cdot 10^4$ to $35 \cdot 10^4$ r/hour, total dosage $1.5 \cdot 10^6$ to $2 \cdot 10^6$ r) in evacuated glass tubes (which were provided with manometer tubes). The following is shown by the results of these investigations: The adsorptive power of silicagel increases remarkably under the influence of γ -rays, and the amount of the gas, adsorbed by the irradiated silicagel increases up to a known boundary value, with increasing irradiation dose. The first diagram shows the change of the adsorptive properties of silicagel with respect to H_2 , N_2 and Ar at low pressures, and the second diagram shows the same for CO_2 , CO , NH_3 , C_2H_4 and H_2S , under the condition, that pressures of $1 - 10^{-1}$ torr prevailed before the irradiation. According to these diagrams, the adsorptive power of the irradiated silicagel samples increases differently for different gases.

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Variation of Adsorptive Properties of Silicagel
Under the Action of Gamma-irradiation

At comparatively high gas pressures (4 torr) the irradiated silicagel can adsorb an amount of hydrogen of $2.5 \cdot 10^{-5}$ of its total weight. In this experiment, it is important and interesting, that silicagel assumes its previous properties, if heated to 100° . At room temperature, almost no such "annealing" of the irradiation effect may be noticed. Obviously, the changes of the adsorptive properties of silicagel under irradiation with γ -rays may be explained by the separation of hydroxyl groups and the formation of free valences at the surface as well as by the interruption of the bonds between the free radicals (which were formed during the primary heat treatment) and by the high ionization of the gas (the adsorbate), effecting an increase of the adsorptive power of silicagel. There are 3 figures and 7 references, 6 of which are Soviet.

SUBMITTED: June 9, 1959

Card 3/3

24(4) 5.4500 (B)
AUTHORS:

Starodubtsev, S. V., Academician, Uzbekskaya SSR, Gurskiy, M. N.,
Sizykh, A. G.

TITLE:

Change of the Optical Properties of Benzene Irradiated by γ -Rays

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 2, pp 307-309
(USSR)

ABSTRACT:

The present paper deals with the investigation of such optical properties of irradiated material which make it possible to determine the accumulation of transformation products. For this purpose the scattering of light, luminescence, rotation of the polarization plane, refractive index, and the molecular absorption spectra of pure benzene were investigated. Benzene was purified by drying over sodium, subsequent fractional distillation and finally by recrystallizing it twice. Co^{60} served as source of γ -radiation. At a high integral irradiation dose ($110 \cdot 10^6$ r) an insoluble yellowish-white precipitate is formed which may be easily separated by centrifugeing. Subsequently the samples were distilled under sealed ampules in vacuum at a temperature of 35 to 40°. In the heavy fractions a viscous yellow liquid was formed.

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Change of the Optical Properties of Benzene Irradiated by γ -Rays SOV/2C-129-2-19/66

which is heat resistant. The degree of depolarization decreases with increasing dose of irradiation, viz. due to the increase of the isotropic component of the Rayleigh scattering. The anisotropic component I_x shows only unimportant fluctuations with respect to the isotropic component I_z . This indicates that in the isotropic liquid isotropic inhomogeneities occur. At doses of $5 \cdot 10^6$ r chloroform groups are observed which determine the color of the compound. With increasing dose the purely molecular scattering passes into a scattering of the Tyndall type which is in connection with the occurrence of larger particles of the radiolysis products. The luminescence spectra were recorded by a three-prism spectrograph of the type ISP-51 to determine the spectral composition. A diagram shows the results of the photometric recording which illustrate the dependence of the density D on the wavelength λ . With increasing irradiation dose of benzene the intensity of luminescence increases especially in the red range of the spectrum. The luminescence character of the irradiated samples is confirmed by the complete extinction when small quantities of aniline are added. The effects described here may be explained by the

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Change of the Optical Properties of Benzene Irradiated by γ -Rays SOV/20-129-2-19/66

properties of the large molecules which are formed in the radiolysis from the initial benzene. The rotation of the polarization plane of the irradiated benzene is also of interest. This indicates the occurrence of asymmetric molecules without center and plane of symmetry. These results lead to the following conclusions: (1) The effect of the γ -rays on benzene changes its optical properties which illustrate the dynamics of the radiolysis processes. (2) The change of the character of the inhomogeneities and of their development at increasing dose may be determined by the method of light scattering. (3) The luminescence of the irradiated benzene is shifted into the visible range. There are 2 figures and 5 references, 3 of which are Soviet.

SUBMITTED: July 9, 1959

Card 3/3

08/25/2000

CIA-RDP86-00513R001652920019-6"

SOV/20-129-2-19/66

~~24.6600~~
AUTHORS:

Starodubtsev, S. V., Academician of the USSR, and Makaryunas, K. V.

TITLE:

On the Mechanism of Direct Interaction in the Reaction $\text{Li}^{6(\alpha,d)\text{Be}^8}$

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 3, pp 547-549 (USSR)

ABSTRACT:

First, a brief report is given about the present stage of the problem on the basis of some earlier papers. The authors carried out experiments with α -particles of the energy of 8.34 and 13.2 Mev, which were accelerated in the cyclotron of the Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Physico-technical Institute of the Academy of Sciences, USSR). Lithium targets of natural isotopic composition were then bombarded herewith. The particles emitted from the target were recorded on photographic plates of the type Ya-2 (emulsion thickness 100 μ), which were located in a scattering chamber constructed by S. V. Starodubtsev, Ye. M. Lobanov and I. M. Shcheglov. The average angle between the plane of the photographic plate and the direction of motion of the secondary particles leaving the targets amounted to 10°. During investigation of the photographic plates under the microscope, an intense group of deuterons was found which had been produced

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On the Mechanism of Direct Interaction in the Reaction

$\text{Li}^6(\alpha, d)\text{Be}^8$

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bombarding particles. All this, and the rather large reaction cross section are indicative of the important part played by the process developing without the formation of a compound nucleus. Probably, the α -particles knock out deuterons from the Li^6 -particles and a substructure in form of a deuteron probably exists in the Li^6 -nucleus for a certain time. There is a certain agreement between Butler's theory and experimental results. The authors thank the co-workers of the Physico-technical Institute of the AS USSR, who collaborated in the present investigation. There are 1 figure and 9 references, 2 of which are Soviet.

SUBMITTED:

June 26, 1959

Card 3/3

STARODUBTSEV, S.V.

~~STARODUBTSEV, S.V.~~

PHASE I BOOK EXPLOITATION: SOV/5410

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Trudy (Transactions) of the Tashkent Conference on the Peaceful Uses of Atomic Energy) v. 2. Tashkent, Izd-vo AN UzSSR, 1960. 149 p. Errata slip inserted. 1,500 copies printed.

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Responsible Ed.: S. V. Starodubtsev, Academician, Academy of Sciences Uzbek SSR. Editorial Board: A. A. Abdullayev, Candidate of Physics and Mathematics; D. M. Abdurashulov, Doctor of Medical Sciences; U. A. Arifov, Academician, Academy of Sciences Uzbek SSR; A. A. Borodulina, Candidate of Biological Sciences; V. H. Ivashev; G. S. Ikramova; A. Ye. Kiv; Ye. H. Lobanov, Candidate of Physics and Mathematics; A. I. Nikolayev, Candidate of Medical Sciences; D. Nishanov, Candidate of Chemical Sciences; A. S. Sadykov, Corresponding Member, Academy of Sciences USSR, Academician, Academy of Sciences Uzbek SSR; Yu. N. Galanin,

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Transactions of the Tashkent (Cont.)

Instruments used, such as automatic regulators, flowmeters, level gauges, and high-sensitivity gamma-relays, are described. No personalities are mentioned. References follow individual articles.

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Lobanov, Ye. M. [Institut yadernoy fiziki UzSSR - Institute of Nuclear Physics AS UzSSR]. Application of Radioactive Isotopes and Nuclear Radiation in Uzbekistan 7

Taksar, I. M., and V. A. Yanushkovskiy [Institut fiziki AN Latv SSR - Institute of Physics AS Latvian SSR]. Problems of the Typification of Automatic-Control Apparatus Based on the Use of Radioactive Isotopes 9

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SOV/5410

Transactions of the Tashkent (Cont.)

Breger, A. Kh., V. B. Osipov, and V. A. Gol'din [Fiziko-khimicheskiy institut im. L. Ya. Karpova - Physicochemical Institute imeni L. Ya. Karpov]. Universal Plant With Source of Gamma-Radiation Co²⁰ With an Activity of 60,000 g-equiv. of Radium for Simulating Radiation-Chemical Apparatus and Conducting Investigations (K--60,000) 100

Breger, A. Kh. [Physicochemical Institute imeni L. Ya. Karpov]. Scientific and Technical Principles in Developing Radiation-Chemical Apparatus 107

Arifov, U. A., S. V. Starodubtsov, Ye. M. Lobanov, G. A. Kleyn, and S. Z. Pashinskiy [Institute of Nuclear Physics AS UzSSR]. Plants of the Academy of Sciences of the Uzbekskaya SSR for Various Gamma-Radiation Studies and Semi-Industrial Experiments 120

Breger, A. Kh., B. I. Vaynshteyn, L. S. Guzey, Yu. S. Ryabukhin, and N. P. Syrkus [Physicochemical Institute imeni L. Ya. Karpov]. Absorption of Gamma-Radiation in Macrosystems 123

Card 8/20

24.7700
24(2), 24(4)
AUTHORS:

TITLE:

68585
S.V.
S/166/60/000/01/005/011
Starodubtsev, O.R., Academician of the AS Uz SSR, and Niyazova, O.R.
Sonde-Type Characteristics of the Roentgen Conductivity of the
Monocrystals CdS

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-
matematicheskikh nauk, 1960, Nr 1, pp 40-46 (USSR)
ABSTRACT: With the aid of a local excitation of a narrow crystal region the
author investigated the dependence of the sonde-type curves of
the roentgen conductivity on the polarity and strength of the
electrical field, on the size of the crystal, and on the intensity
of the penetrating radiation. It was stated that the conductivity
of CdS is generated by electrons as well as holes, where under
ceratin assumptions the influence of the positive carriers
becomes dominant. It is shown that the obtained sonde-type curves
are very sensible characteristics of the inner inhomogeneities of

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STARODUB'TSEV, S.V., akademik

V.I.Lenin and the physics of the microworld; on the 90th anniversary of the birth of V.I.Lenin. Izv.AN Uz.SSR. Ser.fiz.--mat.nauk no.2:3-9 '60. (MIRA 13:10)

1. Akademiya nauk UzSSR.
(Physics--Philosophy)

STARODUBTSEV, S.V.

S/166/60/000/03/04/011
C111/C222

AUTHORS: Velyukhov, G.Ye., Prokof'yev, A.N., Academician AS Uz SSR, and
Starodubtsev, S.V.

TITLE: A Method for Identifying Charged Particles From Reactions With Quick
Neutrons

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matemati-
cheskikh nauk, 1960, No. 3, pp. 24 - 31

TEXT: For the investigation of the nuclear reactions (n,p) , (n,d) , (n,α)
the charged particles appearing during the configuration interaction must be
identified; that leads to several difficulties. The authors propose a method
basing on the measurement of $E \cdot \frac{dE}{dx}$ while usually $\frac{dE}{dx}$ is measured. The

proposed method permits to identify dependably the charged particles in a
large energy interval. The scheme of devices used for the application of the
method is described in detail.

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S/166/60/000/004/008/008
B112/B202

9,4177 (1043,1035)

AUTHOR:

Starodubtsev, S. V., Academician of the Academy of Sciences
Uzbekskaya SSR, Niyazova, O. R.

TITLE:

Phenomenon of the activation of conductivity in monocrystal-
line cadmium sulphide treated with X-rays

PERIODICAL:

Akademiya nauk Uzbekskoy SSR. Izvestiya. Seriya fiziko-
matematicheskikh nauk, no. 4, 1960, 92 - 94

TEXT: The present paper is the continuation of an earlier one (Izv. AN
UzSSR, ser. fiz.-mat. nauk, 1959, no. 3, 65) in which the authors described
the activation of conductivity of a crystal on exposure to X-rays: uniform
irradiation of the entire crystal surface causes a rapid activation of
conductivity while partial irradiation with a narrow beam of rays leads to
a slow increase in activation until a steady value is attained. In this
case the previous treatment of the specimen is of great importance. The
present paper contains three diagrams illustrating the behavior observed:
Fig. 1 shows the course of local X-irradiation at the point of maximum
intensity, with time; Fig. 2 shows the thermal annealing for the activation

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